

Impact of deep cultivation on run-off, soil and nutrient conservation in rainfed conditions

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Received : 14.03.2014; Revised : 29.08.2014; Accepted : 11.09.2014

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■ **ABSTRACT** : A field experiment was conducted on cropping systems for *in situ* soil and moisture conservation during the *Kharif* season of 2012-13 at Agro-ecology and Environment Centre, Dr. P.D.K.V., Akola. The main objective was to estimate *in situ* soil and moisture conservation and to study the effect on crop growth and productivity. The experiment consisted of two crops *viz.*, cotton (variety-AKA-7) and soybean (variety- JS-335) with eight treatments of cropping systems and cultivation practices. Data pertaining to the growth and yield of soybean (JS-335) and cotton (AKA-7) indicated the favorable effects of 30 cm deep cultivation in medium deep soil under sole and intercropping systems. Results on growth parameters revealed that the performance of soybean crop in terms of plant height, no. of branches, no. of pods, grain yield, straw yield and WUE under 30 cm deep cultivation was found better in both, sole (T_5) and intercropping systems (T_7) over shallow cultivation (T_2 and T_4). The performance of the cotton crop in terms of plant height, no. of branches and picked bolls per plant, seed cotton, stalk yield and WUE under deep cultivation was found better in both, sole (T_6) and intercropping systems (T_7) over T_3 and T_4 under shallow cultivation. The maximum soil moisture content up to the depth of 60 cm was observed 11.08 to 17.86 per cent in T_7 followed by T_6 (10.96 to 17.17 %) and minimum in T_5 (10.76 to 16.98 %). Over the treatment of T_2 , T_3 and T_4 , respectively. The maximum increase in soil moisture content was observed 10.12 to 15.94 per cent in T_5 followed by T_6 (8.25 to 12.29 %) and T_7 (9.48 to 10.79 %) over the treatment of T_2 , T_3 and T_4 , respectively.

■ **KEY WORDS** : Cropping system, Growth, Intercropping, Moisture, Water use efficiency

■ **HOW TO CITE THIS PAPER** : Taley, S.M., Pongde, S.M. and Vilhekar, S.C. (2014). Impact of deep cultivation on run-off, soil and nutrient conservation in rainfed conditions. *Internat. J. Agric. Engg.*, 7(2) : 417-421.